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THE
ONTARIO WATER RESOURCES
COMMISSION

WATER POLLUTION SURVEY

of the

VILLAGE OF WEST LORNE

COUNTY OF ELGIN

1966

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1966
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Report on a water pollution
survey of the village of West
Lorne in the county of Elgin.

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REPORT
ON A
WATER POLLUTION SURVEY
OF THE
VILLAGE OF WEST LORNE
COUNTY OF ELGIN
1966
DIVISION OF SANITARY ENGINEERING.

REPORT

ONTARIO WATER RESOURCES COMMISSION

INTRODUCTION

A water pollution survey was conducted in the Village of West Lorne on June 15 and September 8, 1966. The purpose of the survey was to locate and record all significant sources of water pollution within the village.

The Ontario Water Resources Commission conducts such surveys, routinely and upon request throughout the province, as part of its objective to eliminate existing and potential sources of pollution.

The procedure followed is to sample all known or suspected sources of pollution. When adverse conditions are found to exist, recommendations are made to assist the municipality in the initiation and development of a pollution abatement programme.

PREVIOUS SURVEYS BY OWRC STAFF

This is the initial water pollution survey to be conducted in the Village of West Lorne by the OWRC.

INTERVIEWS WITH OFFICIALS

An interview was held with Mrs. V.M. Reid, Clerk of the Village of West Lorne. It was indicated that the council was considering the financial implications of a sewage works programme.

VILLAGE OF WEST LORNE

The Village of West Lorne, with a population of 1,065 and

a taxable assessment of \$1,609,000.00 (1966 Municipal Directory), is located on Highway #76 approximately one mile south of Highway #401.

DRAINAGE

The village is part of the Brock Creek Watershed. Surface water drainage for the village is provided by the Trigger Drain and the Wilton Drain. Both drains are enclosed and discharge to Brock Creek which empties into Lake Erie approximately five miles southwest of the village.

The Wilton Drain begins at the northern limits of the village and follows Graham Street to a catch basin about 200 yds south where it empties into Brock Creek. The central and eastern sections of the village are serviced by this drain.

The Trigger Drain services the western section of the village. It follows Wellington Street from north to south where it empties into Brock Creek on the south side of Robertson Street.

TOPOGRAPHY

The overburden consists of an almost level sand plain which tilts slightly towards Lake Erie in a southerly direction. The layer of sand ranges from 10 to 20 feet above a blue clay layer. The water table in the sand ranges from 4 - 15 feet from the surface.

WATER USES

The watercourse is used as the receiving stream for surface water run-off from the municipality. The smallness of the stream

limits its usefulness for other purposes other than a drainage creek.

WATER SUPPLY

The village is serviced by a municipal water system. The system is owned and operated by the Village of West Lorne, and services the villages of West Lorne, Rodney and Dutton.

Water is obtained from Lake Erie and it is coagulated, settled, filtered and chlorinated prior to entering the distribution system. The plant capacity is 0.70 mgd and the maximum daily pumpage in 1965 was only .309 mgd. Previous Commission inspection reports on this plant indicate the chemical and bacteriological quality has been generally satisfactory.

SEWAGE DISPOSAL FACILITIES

Individual private sewage disposal systems are utilized in the absence of a municipal sewage works.

The results of the samples collected during the survey indicate that partially treated or raw sewage was being discharged to the storm sewer system. Information obtained at the time of the survey indicated that the business section was the main offender due to a lack of space for tile beds.

The soil conditions are generally satisfactory for septic tank and tile bed systems. All installations of septic tank systems require the approval of the Elgin-St.Thomas Health Unit.

INDUSTRY

There is no industry in the village which would have a waste water discharge other than normal sanitary wastes.

SAMPLING PROCEDURES

Samples were collected from the outlets of the two storm sewers and from Brook Creek approximately one-half mile downstream from the village. The location of the sampling points is shown on the enclosed map.

The samples were submitted to the OWRC laboratory for chemical analyses and bacteriological examination.

INTERPRETATION AND SIGNIFICANCE OF LABORATORY ANALYSES

Bacteriological Examination

The Membrane Filter technique was used to obtain a direct enumeration of coliform organisms. These organisms are normal inhabitants of the intestines of man and other warm blooded animals. They are always present in large numbers in sanitary sewage and are generally minimal in other water pollutants.

The results of the examinations are reported as "M.F. Coliforms per 100 ML".

The Commission's objective for storm sewer discharges and stream quality is a coliform density of not greater than 2,400 organisms per 100ml.

SANITARY CHEMICAL ANALYSES

Biochemical Oxygen Demand (BOD)

Biochemical Oxygen Demand is reported in parts per million (ppm) and is an indication of the amount of oxygen required for the stabilization of decomposable organic matter in the water.

The Commission's objective for storm sewer discharges is a maximum of 15 ppm, and for stream quality is a maximum 4 ppm.

SOLIDS

The values for total solids, expressed in parts per million (ppm), is the sum of the values for the suspended and the dissolved matter in the water. The concentration of suspended solids is generally the most significant of the solids analyses in regard to the sanitary quality of the water.

The effects of suspended solids in water are reflected in difficulties associated with water purification, deposition in streams and injury to the habitat of fish.

The Commission's objective for water being discharged from a storm sewer and stream quality is an upper limit of 15 ppm suspended solids.

SAMPLE RESULTS

The laboratory results revealed the polluting material was present in all of the samples. The extremely high coliform counts in the samples generally indicates the presence of inadequately treated sewage. As coliform organisms are normal inhabitants of the intestines of man, it is possible for water-borne disease organisms to be present in the water discharging from the storm sewers.

SUMMARY

A water pollution survey of the Village of West Lorne was conducted on June 15 and September 8, 1966.

Samples were collected for chemical analyses and bacteriological examination from the two storm sewers serving the municipality and Brook Creek, the receiving stream approximately one-half mile downstream from the village.

The results of the samples indicated that polluting material was being discharged to Brook Creek via the village's storm sewer system.

CONCLUSION

The Commission is concerned with all sources of pollution which may gain access to any watercourse in the Province of Ontario. Domestic sewage should receive adequate treatment before being discharged to a watercourse.

Correction of the adverse conditions found during this survey may be accomplished by the severance of all private sewage connections to the storm sewers or the installation of sanitary sewers and a sewage treatment plant. In a great number of cases, the latter procedure is the more desirable.

RECOMMENDATIONS

In order to control local sanitation, and as a measure in pollution abatement and control, the following recommendations are presented.

1. A pollution abatement programme should be instituted for the Village of West Lorne. Such a programme should include the installation of a system of sanitary waste collection sewers and an adequate method of waste treatment.

2. In the event that the institution of sewerage works is not feasible, it will then be required that the municipality take immediate measures to ensure that all private drains which discharge inadequately treated wastes to any surface-water drain, or watercourse, are located and severed. This action will then require each property owner to provide an approved system for the adequate treatment of his own wastes.

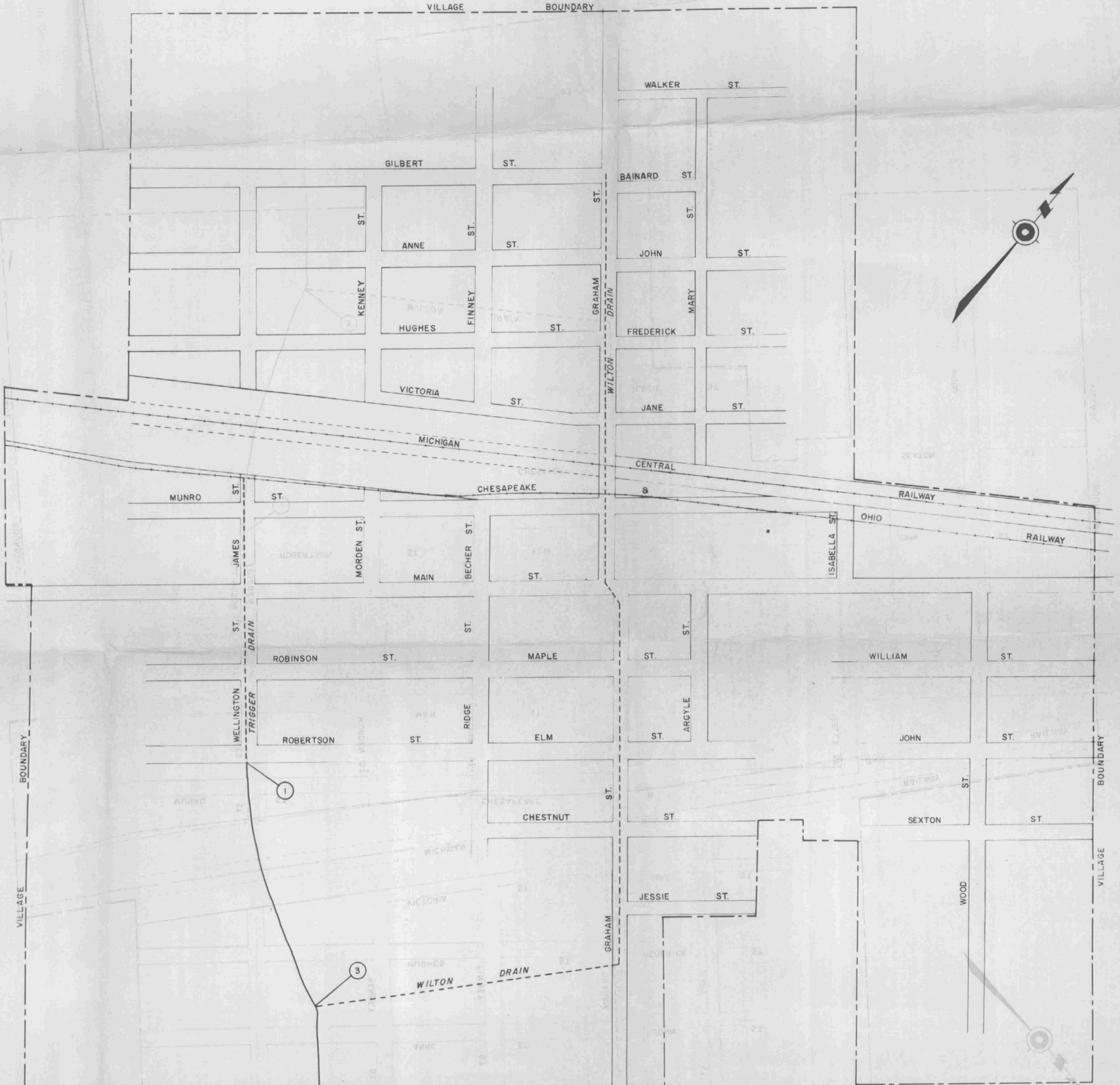
Prepared by

J. A. Moore for
R.G. Quance, Technician,
Division of Sanitary Engineering.

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TABLE I
VILLAGE OF WEST LORNE - WATER POLLUTION SURVEY
SAMPLE ANALYSES RESULTS

<u>Description of Sampling Points</u>	<u>BOD (ppm)</u>	<u>Total (ppm)</u>	<u>S O L I D S</u>		<u>Coliforms per 100 ml Membrane Filter</u>
			<u>Susp. (ppm)</u>	<u>Diss. (ppm)</u>	
(1) Trigger Drain at Robertson & Wellington Sts.	5.2	512	20	492	2,100,000
(2) Brook Creek downstream from West Lorne at Conc. Rd. #10	6.0	472	106	366	590,000
(3) Wilton Drain outlet to Trigger Drain	8.0	372	13	359	11,000,000



LEGEND

(2) - SAMPLING POINT



ONTARIO WATER RESOURCES COMMISSION			
VILLAGE OF WEST LORNE			
WATER POLLUTION SURVEY			
1966			
SCALE	300	150	0 300 FEET
DRAWN BY:	L L BROOME	DATE: DECEMBER, 1966	
CHECKED BY:	DRAWING No: 66-87		